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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/867,865	05/29/2001	Vijayanand Vusirikala	P40/SYCS-002	9022
959	7590	11/18/2003	EXAMINER	
LAHIVE & COCKFIELD 28 STATE STREET BOSTON, MA 02109			LEUNG, QUYEN PHAN	
			ART UNIT	PAPER NUMBER
			2828	
DATE MAILED: 11/18/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/867,865

Applicant(s)

VUSIRIKALA, VIJAYANAND

Examiner

Quyen P. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. In response to applicant's amendment filed 8/28/03, claims 1, 3-4, 6, 10-11, 14-15 and 19-21 have been amended and claim 22 added. Claims 1-22 are pending.

Response to Arguments

2. Applicant's arguments filed 8/28/03 have been fully considered but they are not persuasive. Applicant made the following arguments:

- a. "...the '366 patent fails to disclose a VCSEL."
- b. "...the '366 patent fails to disclose the stabilizer module for stabilizing modal gains of the multiple modes of the VCSEL, as recited in claim 4... The '366 patent only discloses in Fig. 6 the shape of the coherence characteristics for multilongitudinal mode output."
- c. "...the '366 patent fails to disclose increasing the current through the contact region to stabilize modal gains of the multiple modes of the VCSEL, as recited in claim 4."

In response to applicant's arguments a-c Examiner generally disagrees with applicant's contentions for the following reasons.

Regarding Epworth et al not teaching a VCSEL, it is noted in claims 1-4, 6 applicant's claimed VCSEL requires only an active region and a contact region and a stabilization module. Epworth et al teaches all the claimed features and therefore anticipates the claimed invention. Regarding the independent claims 7, 11, 16, since

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VCSEL was not defined in the claims, the definition provided in applicant's specification page 1 in lines 20-25 was used.

Regarding the feature that the stabilization module not teaching increasing the current, it is noted that in col. 6 lines 63-65 that Epworth teaches modal stabilization occurs with laser bias adjustment. Since it was not limited to decreasing laser bias only, Epworth's does not exclude increasing laser bias in its discussion of laser bias adjustment relating to modal stabilization. So applicant's argument that the stabilization module does not teach increasing current is not persuasive.

Regarding stabilizing of the modal gains, it is noted that Epworth addresses this in col. 6 line 36 through col. 7 line 10. Epworth notes that when more than one mode is present in the laser output, the light output's characteristic shape of coherence is represented by 60c of figure 6. In this case where the laser spectral property has degraded, modal stabilization is attained by adjusting the laser bias. Further it is pointed out that Epworth appreciates that degradation of the laser characteristics results in increasing eye closure due to chromatic dispersion, as discussed in applicant's figure 4 and figure 5.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3, 6, 10, 14, 15, 19, 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 3 recites "the VCSEL is adapted to use in high-speed communication links over a multimode fiber" in lines 1-2. It is unclear what further VCSEL structural limitations are being implied by that recitation of intended use. Claims 6, 10, 15, 20 are rejected for the same reason.

6. Claim 14 recites "the VCSEL is adapted to use in applications of 1.2 Gb/s and 2.5 Gb/s frequencies" in lines 1-2. It is unclear what further VCSEL structural limitations are being implied by that recitation of intended use. Claim 19 is rejected for the same reason.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 6, 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Epworth et al (5,287,366). Epworth et al discloses the claimed invention. Note the contact region and the active region are implicit to the Epworth lasers (10), as discussed by Epworth in col. 3 lines 1-25, because there Epworth teaches injection lasers (10) driven with laser drive current. Regarding the stabilizer module or a determination module and the current module or the first and second modules, note the injection laser driver (see abstract of Epworth) which stabilizes the gains among a plurality of modes induced by spatial power instability (chromatic dispersion, chirping) by increasing the

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current through the contact region (see col. 2 lines 5-45), as evidenced by Epworth col. 6 lines 63-66, which states "the value to which the spectral quality is stabilized can be adjusted in relation to laser bias so as to keep the total penalty substantially at a minimum."

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5, 7-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epworth et al (5,287,366) as applied to claims 4 and 6 above, and further in view of applicant's admitted prior art.

11. Epworth et al has been discussed above except for the laser being a "oxide" VCSEL or including a plurality of mirror stacks.

Regarding the oxide VCSEL, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the laser being a "oxide" VCSEL, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding the plurality of mirror stacks, while it is noted that Epworth teaches edge emitting lasers, as evidenced by col. 3 lines 16-18, by referring to the rear of the

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laser for light monitoring purposes, Applicant's admitted prior art (see applicant's discussion under the section "Background of the invention" on pages 1-2) discloses that the VCSELs are well-known lasers which have the advantageous benefits of being smaller, having potentially higher performance and is more manufacturable than the edge-emitting lasers. It would have been obvious to one of ordinary skill in the art to modify Epworth by employing a VCSEL, as admitted by Applicant, for the VCSEL's advantageous benefits of being smaller, having potentially higher performance and is more manufacturable than the edge-emitting lasers.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quyen P. Leung whose telephone number is (703) 308-0545. The examiner can normally be reached on 8:30-5:00, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Quyen P. Leung
Primary Examiner
Art Unit 2828

QPL